

Arkema Facility - Harvey Response

Crosby, TX

Arkema Inc.

September 8, 2017

Project #109489 Summary

1.0 Introduction

As a result of flooding events related to Hurricane Harvey, the Arkema facility located in Crosby, TX suffered a loss of power and failure on refrigeration of manufacturing process. The loss of temperature control resulted in degradation and heating of organic peroxides, with the potential of creating a fire. As a precautionary measure, local authorities established a 1.5-mile radius evacuation zone around the facility.

On August 31, 2017, the Center for Toxicology and Environmental Health, LLC (CTEH®) was contacted by Arkema Inc. (Arkema) to initiate air monitoring and sampling around the community areas outside of the evacuation zone perimeter. This submittal summarizes the results of real-time air monitoring conducted by CTEH® personnel from 06:00 on September 7, 2017 to 06:00 on September 8, 2017. A map of the site location is provided in **Attachment A**.

2.0 Real-time Air Monitoring

All real-time air monitoring instrumentation was calibrated per the manufacturer's recommendations prior to air monitoring. Handheld, real-time air monitoring was conducted for oxygen (O₂) and volatile organic compounds (VOCs) using RAE Systems MultiRAE instruments. Additionally, particulate matter (PM_{2.5}) was assessed using TSI SidePak AM510s. **Table 1** summarizes the data for all real-time air monitoring readings recorded in the Crosby, TX Community from 06:00 on September 7, 2017 through 06:00 on September 8, 2017 and Table 2 summarizes the Worker Activity real-time air monitoring readings from within the site boundary for the same period. Maps of real-time air monitoring locations are provided as **Attachment B**.

Table 1 Community Real-time Handheld Air Monitoring Readings
06:00 September 7, 2017 – 06:00 September 8, 2017

Analyte	Instrument	Number of Readings	Number of Detections	Range of Detections*
PM _{2.5}	AM510	112	112	0.012 - 0.320 mg/m ³
VOCs	MultiRAE	112	0	< 0.1 ppm

*If detections were not observed, the instrument detection limit is listed in this column.

Table 2 Worker Activity Real-time Handheld Air Monitoring Readings
06:00 September 7, 2017 – 06:00 September 8, 2017

Analyte	Instrument	Number of Readings	Number of Detections	Range of Detections*
LEL	MultiRAE	2	0	< 1.0 %
O ₂	MultiRAE	1	1	20.9 %
VOCs	MultiRAE	6	0	< 0.1 ppm

*If detections were not observed, the instrument detection limit is listed in this column.

3.0 Analytical Air Sampling

To supplement real-time air monitoring, CTEH® deployed areas along the perimeter of the evacuated area within the community. Evacuated canister (Minican™) samplers were regulated to collect air evenly over a 24-hr period. Analytical air samples will be submitted to SGS Galson Laboratories, an AIHA-accredited laboratory, for analysis using EPA Method TO-15. A map highlighting the analytical air sampling locations is provided as **Attachment C**. Analytical Air Sampling Results will be reported upon receipt from the laboratory.

Attachment A

Site Location Map

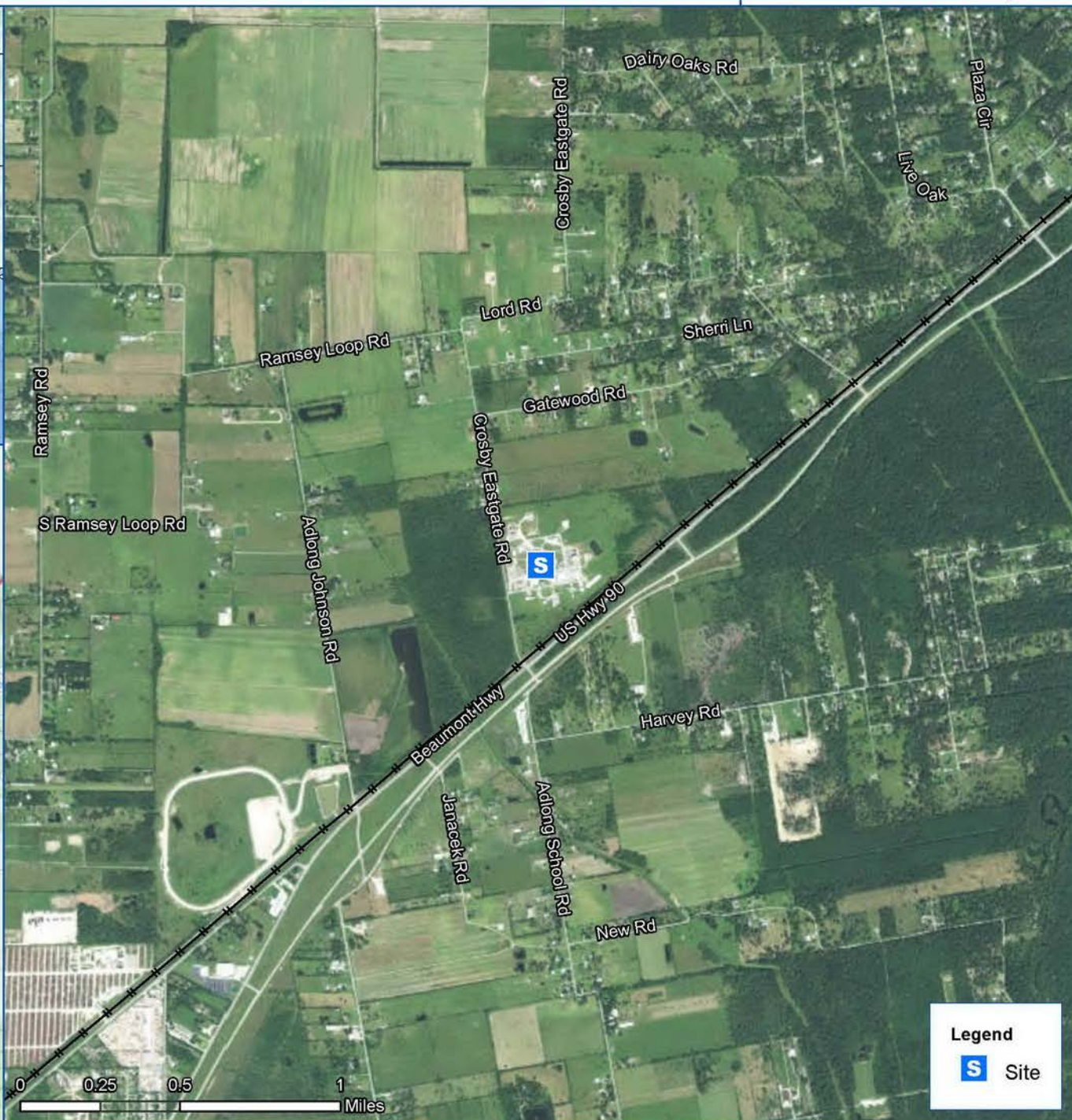
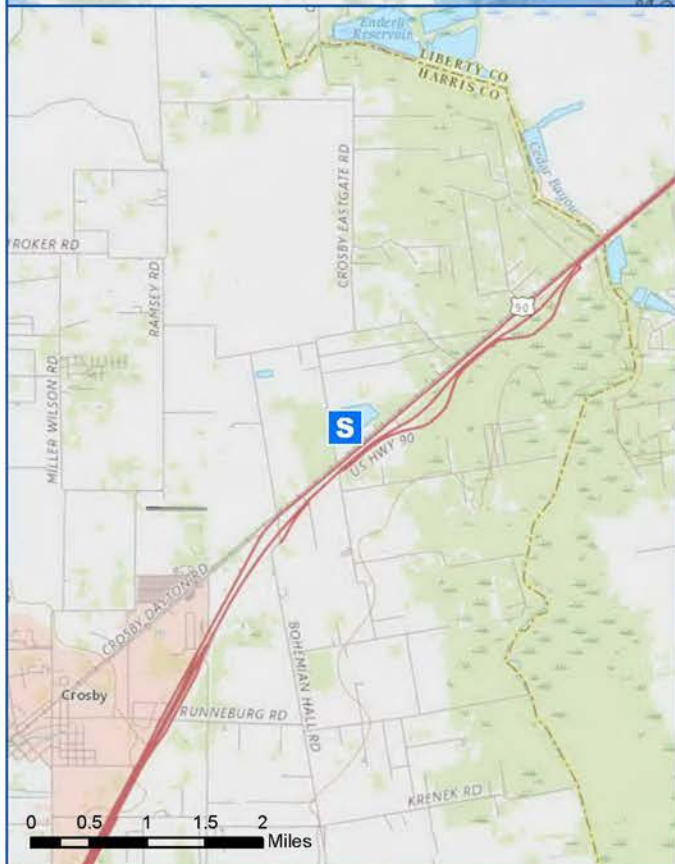
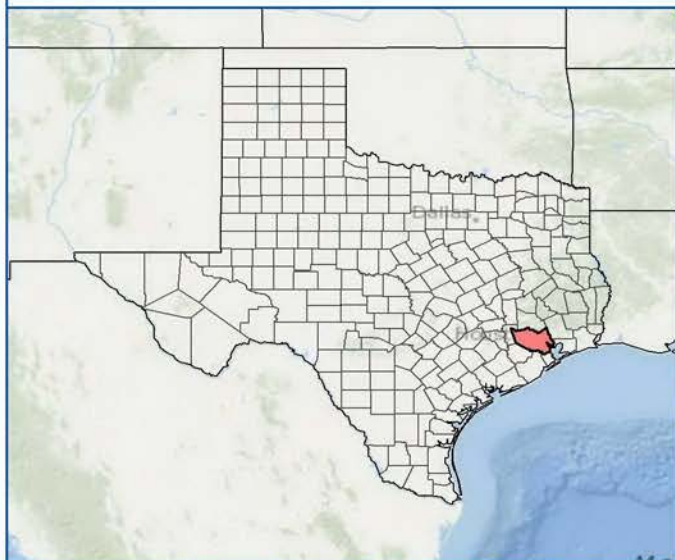


Harvey Response

Site Location



Project: 109458
Client: Arkema
City: Crosby, TX
County: Harris

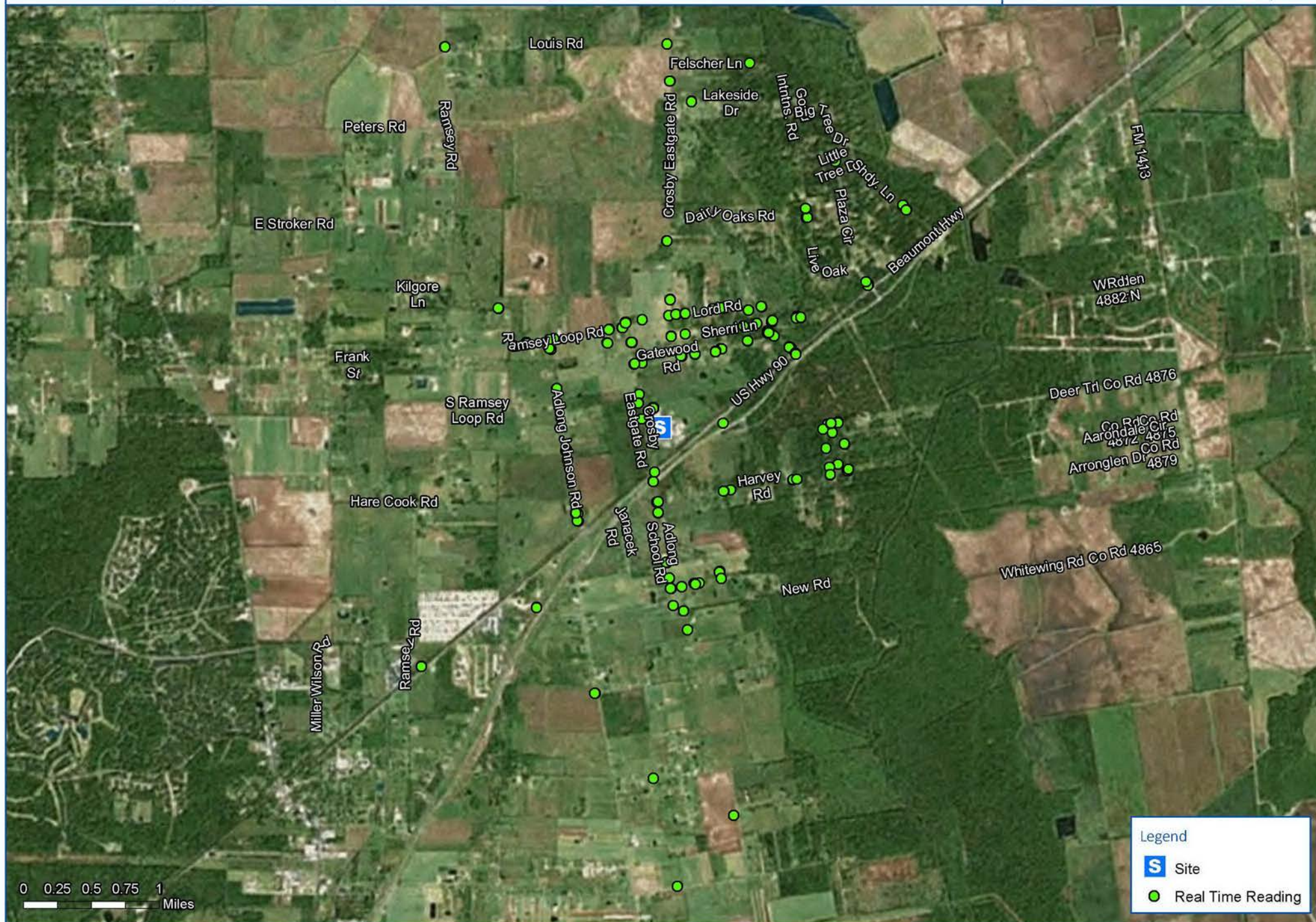


Legend

S Site

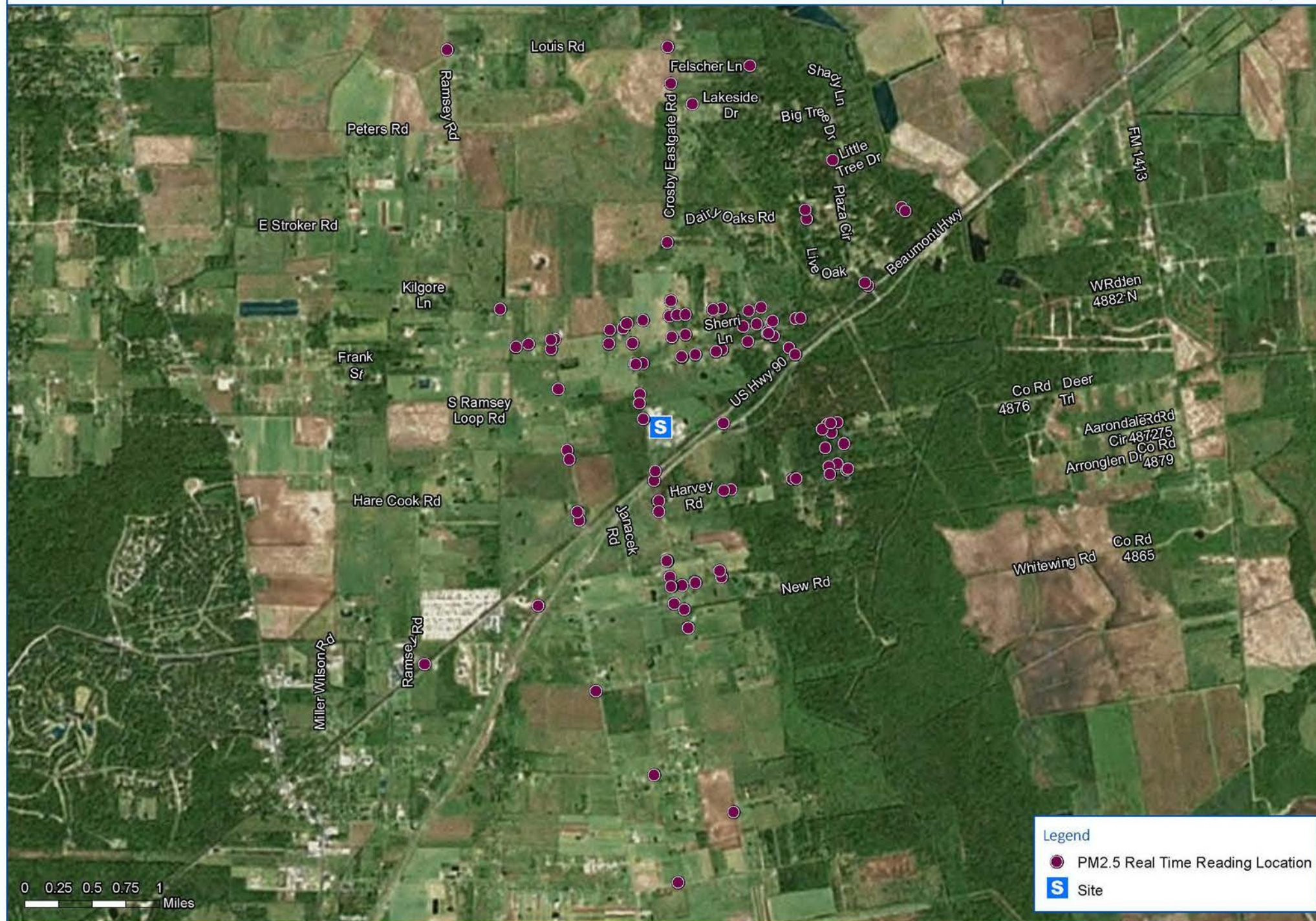
Attachment B

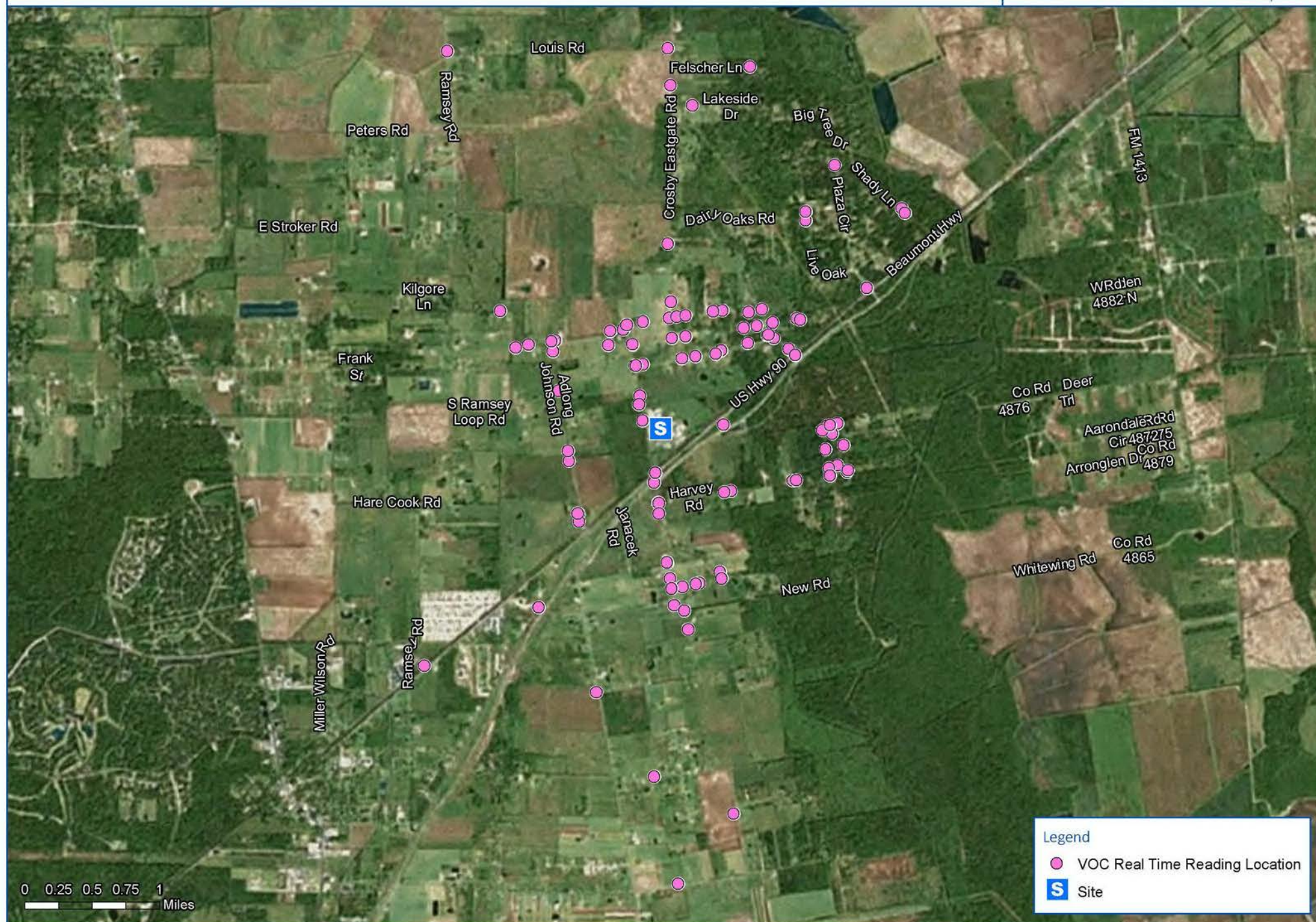
Handheld Real-time Air Monitoring Locations



Legend

 Site Real Time Reading







Legend

- LEL Real Time Reading Locations
- Site



Oxygen Hand-held Real-time Reading Locations - Worker Activity

Harvey Response - 06:00 September 7, 2017 to 06:00 September 8, 2017



Project: 109489


Client: Arkema

City: Crosby, TX

County: Harris



Legend

 O2 Real Time Reading Location

 Site

PROJECTION SYSTEM: UTM15 COORDINATE SYSTEM: WGS84

Last Updated: 9/8/2017 10:02:45 AM

ARK_HPCSD_0000086



Attachment C

Map of Analytical Air Sampling Locations

Attachment D

K6R3 Weather

(Cleveland Municipal Airport - 27.3 miles North of Site)

Cleveland, TX

Cleveland

© 3:40 PM CDT on September 08, 2017 (GMT -0500)

Forecast **History** Calendar Rain / Snow Health

Weather History for K6R3 - September, 2017

From:

September 7 2017

To:

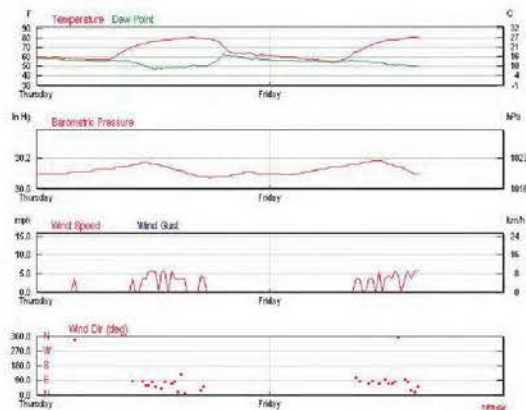
September 8 2017

Get History

Daily Weekly **Monthly** Custom

	Max	Avg	Min	Sum
Temperature				
Max Temperature	81 °F	81 °F	81 °F	
Mean Temperature	69 °F	68 °F	68 °F	
Min Temperature	57 °F	56 °F	56 °F	
Degree Days				
Heating Degree Days (base 65)	0	0	0	0
Cooling Degree Days (base 65)	4	4	4	8
Growing Degree Days (base 50)	19	18	18	37
Dew Point				
Dew Point	63 °F	56 °F	48 °F	
Precipitation				
Precipitation	0.00 in	0.00 in	0.00 in	0.00 in
Snowdepth	-	-	-	-
Wind				
Wind	6 mph	1 mph	0 mph	
Gust Wind	-	-	-	
Sea Level Pressure				
Sea Level Pressure	30.18 in	30.12 in	30.07 in	

Custom Weather History Graph



Weather History & Observations

2017	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
Sep	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
7	81	69	57	63	56	48	96	70	32	30.17	30.11	30.07	10	10	7	6	1	-	0.00	
8	81	68	56	58	55	51	96	72	34	30.18	30.13	30.09	10	9	7	6	1	-	0.00	

CTEH

ARK_HCPCSD_0000090